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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,786	03/17/2004	Robert Dayton Sigler	040092-012310US	8053
31824	7590 09/08/2005		EXAM	INER
MCDERMOTT WILL & EMERY LLP			PRITCHETT, JOSHUA L	
18191 VON KARMAN AVE. SUITE 400			ART UNIT	PAPER NUMBER
· · · ·	92612-7107		2872	

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

			<u></u>
	Application No.	Applicant(s)	
	10/803,786	SIGLER ET AL.	
Office Action Summary	Examiner	Art Unit	
	Joshua L. Pritchett	2872	
The MAILING DATE of this communication a Period for Reply	appears on the cover sheet wi	th the correspondence address	5
A SHORTENED STATUTORY PERIOD FOR REI WHICHEVER IS LONGER, FROM THE MAILING - Extensions of time may be available under the provisions of 37 CFR after SIX (6) MONTHS from the mailing date of this communication. - If NO period for reply is specified above, the maximum statutory peri - Failure to reply within the set or extended period for reply will, by state that three months after the material patent term adjustment. See 37 CFR 1.704(b).	DATE OF THIS COMMUNIC 1.136(a). In no event, however, may a re- tiod will apply and will expire SIX (6) MON stute, cause the application to become AB	CATION. eply be timely filed THS from the mailing date of this commun ANDONED (35 U.S.C. § 133).	
Status			
1) Responsive to communication(s) filed on _			
2a) ☐ This action is FINAL . 2b) ☒ T	his action is non-final.		
3) Since this application is in condition for allow	wance except for formal matte	ers, prosecution as to the mer	its is
closed in accordance with the practice unde	er <i>Ex parte Quayle</i> , 1935 C.D	. 11, 453 O.G. 213.	
Disposition of Claims			
4)⊠ Claim(s) <u>1-10</u> is/are pending in the application			
4a) Of the above claim(s) is/are witho	frawn from consideration.		
5) Claim(s) is/are allowed. 6)⊠ Claim(s) <u>1-10</u> is/are rejected.			
7) Claim(s) is/are objected to.			
8) Claim(s) are subject to restriction and	d/or election requirement.		
Application Papers			
9)☐ The specification is objected to by the Exam	iner.		
10)⊠ The drawing(s) filed on <u>17 March 2004</u> is/arc		ected to by the Examiner.	
Applicant may not request that any objection to t		•	
Replacement drawing sheet(s) including the corr	rection is required if the drawing(s) is objected to. See 37 CFR 1.	121(d).
11)☐ The oath or declaration is objected to by the	Examiner. Note the attached	Office Action or form PTO-15	52.
Priority under 35 U.S.C. § 119			
12) ☐ Acknowledgment is made of a claim for fore a) ☐ All b) ☐ Some * c) ☐ None of:	ign priority under 35 U.S.C. §	119(a)-(d) or (f).	
1. Certified copies of the priority docume	ents have been received.		
2. Certified copies of the priority docume	ents have been received in A	pplication No	
Copies of the certified copies of the p	•	received in this National Stag	е
application from the International Bur	, , , , , , , , , , , , , , , , , , , ,		
* See the attached detailed Office action for a l	list of the certified copies not	received.	
Attachment(s)			
1) Notice of References Cited (PTO-892)		ummary (PTO-413)	
 Notice of Draftsperson's Patent Drawing Review (PTO-948) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/ 		s)/Mail Date Normal Patent Application (PTO-152)	
Paper No(s)/Mail Date <u>7/04,7/04</u> .	6) Other:		

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stuhlinger ("All-reflective phased array imaging telescopes") in view of Anafi (US 4,953,964).

Regarding claims 1, 2, 8 and 10, Stuhlinger teaches a multiple aperture high fill factor telescope comprising a plurality of sub-aperture telescopes, each sub-aperture telescope being configured to collect electromagnetic radiation from a scen and including first, second, third, and four powered mirrors (Fig. 2). The curvature of the mirrors shown in Fig. 2 of Stuhlinger shows that the mirrors have a power on their surface. Stuhlinger further teaches a set of combiner optics configured to combine electromagnetic radiation collected by the sub-aperture telescopes to form an image of the scene (Fig. 2). Stuhlinger further teaches relay optics disposed within about a beam diameter of the respective exit pupils of the sub-aperture telescopes (Fig. 2). Fig. 2 shows that the beam diameter of Stuhlinger is 3.5 meters and the relay optics are located within about 3.5 meters of the real exit pupils of the sub-aperture telescopes. Stuhlinger lacks reference

to the relay optics including flat mirrors and trombone pair mirrors and having one set of relay optics for each sub-aperture telescope. Anafi teaches a relay section (620-660) for relaying light from a sub-aperture telescope to a combiner section for each of the sub-aperture telescopes. Anafi teaches the use of flat fold mirrors (620 and 660) and suggests the use of a trombone pair. It has been held (In re Larson, 340 F.2d 965, 968, 144 USPO 347, 349 (CCPA 1965)) that it is within the ability of one of ordinary skill in the art to make two pieces of an invention integral if by making the two pieces integral does not prevent the invention from properly functioning. Making the mirror pair between mirrors 640 and 660 into an integral pair and thus a trombone pair would be within the skill of one of ordinary skill in the art. Anafi further teaches the mirrors disposed substantially symmetrically about a central axis. It would have been obvious to one of ordinary skill in the art at the time the invention was made to equip the Stuhlinger reference with the relay optics of Anafi for the purpose of bringing the light from the sub-aperture telescopes to the combiner while avoiding any possible destructive interference between the light gathered by each sub-aperture telescope.

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Regarding claims 3-5, Stuhlinger teaches the sub-aperture telescope comprises four mirrors arranged in two successive reflective telescope arrangements (Fig. 2). The Stuhlinger reference shows a Cassegrain telescope formed by the first and second mirrors and a Newtonian telescope formed by the third and fourth mirrors. Cassegrain, Newtonian and Gregorian reflective telescopes are all extremely well known in the art. It is well within the skill of one of ordinary skill in the art to change between the three types of reflective telescopes by changing the curvature of the secondary reflector. The choice of type of reflective telescopes would depend upon the size of the telescope and viewing angle previewed by the user and whether the

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user wished to create an intermediate image within the telescope as with a Gregorian telescope. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the sub-aperture telescopes of Stuhlinger form any of the claimed combinations of reflective type telescopes for the purpose of having the telescope assembly achieve a desired size and user viewing angle and forming an intermediate image if so desired.

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Regarding claim 6, Stuhlinger teaches the set of combiner optics forms a combiner telescope (Fig. 2).

Regarding claim 7, Sthulinger teaches the exit pupils are located about at an entrance pupil of the combiner telescope (Fig. 2).

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stuhlinger ("Allreflective phased array imaging telescopes") in view of Anafi (US 4,953,964) as applied to claim 1 above, and further in view of Duncan (US 5,905,591).

Stuhlinger in combination with Anafi teaches the invention as claimed but lacks reference to correcting sine magnification errors. Duncan teaches the use of powered mirrors in a telescope used to correct for sine magnification errors (col. 6 lines 40-49). It would have been obvious to one of ordinary skill in the art at the time the invention was made to for the Stuhlinger invention to include correction for sine magnification errors as taught by Duncan for the purpose of achieving a clear image without the distortions associated with sine magnification errors.

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua L. Pritchett whose telephone number is 571-272-2318. The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A. Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 $_{\rm JLP}$ \mathscr{W}

DREW A. DUNN SUPERVISORY PATENT EXAMINER

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